<u>**Amendment to the Claims**</u>:

The listing of claims will replace all prior versions, and listings of claims in the application:

<u>**Listing of Claims**</u>:

1-26. Cancelled.

27. (Currently Amended) A method for constructing a reservoir model representative of an underground reservoir, including discretizing said reservoir by a set of grid cells, and associating with said reservoir model a permeability field constrained by a priori geologic data and ~~dynamic~~ production data <u>or pressure data</u> <u>obtained from well tests</u> collected in said reservoir ~~by measurements and observations~~ comprising:

a)   constructing an initial reservoir model including generating a permeability field in accordance with a stochastic model, coherent with the a priori geologic data;

b)   identifying zones inside said reservoir;

c)   calculating effective permeabilities of said zones and carrying out, by means of a simulator, a simulation of fluid flows, to estimate corrections to be brought to said effective permeabilities to improve calibration in relation to said ~~dynamic~~ production data or pressure data <u>obtained from well tests</u>; ~~and~~

d)   propagating said corrections to said set of grid cells of said reservoir model, by means of an iterative optimization process comprising minimizing a

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function which depends on said correction_s, using a technique of gradual deformation of realizations of said stochastic model[.]; and

e) using said reservoir model, including said correction propagated to said set of grid cells, to develop said underground reservoir.

28. (Currently Amended) A method as claimed in claim 27, ~~wherein said zones are defined either manually or automatically from said flow simulator.~~ comprising using said reservoir model to develop an oil reservoir.

29. (Currently Amended) A method as claimed in claim ~~27~~27, wherein flow simulation is carried out by means of a streamline simulator, ~~and~~said zones of said underground reservoir are identified by a set of grid cells traversed by one or more streamlines of fixed geometry and said zones are defined either manually or automatically from said flow simulator.

30. (Currently Amended) A method as claimed in claim ~~28~~27, wherein flow simulation is carried out by means of a streamline simulator and said zones of said underground reservoir are identified by a set of grid cells traversed by one or more streamlines of fixed geometry.

31. (Previously Presented) A method as claimed in claim 27, wherein said zones are identified as volume portions on a periphery of wells running through said reservoir, within a framework of well tests.

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32. (Previously Presented) A method as claimed in claim 27, wherein said zones are identified as volume portions on a periphery of wells running through said reservoir, within a framework of well tests.

33. (Previously Presented) A method as claimed in claim 29, wherein said zones are identified as volume portions on a periphery of wells running through said reservoir, within a framework of well tests.

34. (Previously Presented) A method as claimed in claim 30, wherein said zones are identified as volume portions on a periphery of wells running through said reservoir, within a framework of well tests.

35. (Previously Presented) A method as claimed in claim 27, wherein at least one gradual deformation parameter is assigned to each of said zones.

36. (Previously Presented) A method as claimed in claim 28, wherein at least one gradual deformation parameter is assigned to each of said zones.

37. (Previously Presented) A method as claimed in claim 29, wherein at least one gradual deformation parameter is assigned to each of said zones.

38. (Previously Presented) A method as claimed in claim 30, wherein at least one gradual deformation parameter is assigned to each of said zones.

39. (Previously Presented) A method as claimed in claim 31, wherein at least one gradual deformation parameter is assigned to each of said zones.

40. (Previously Presented) A method as claimed in claim 32, wherein at least one gradual deformation parameter is assigned to each of said zones.

41. (Previously Presented) A method as claimed in claim 33, wherein at least one gradual deformation parameter is assigned to each of said zones.

42. (Previously Presented) A method as claimed in claim 34, wherein at least one gradual deformation parameter is assigned to each of said zones.